

## CLAIMS

What is claimed is:

1. A programmable temperature control apparatus for the control of temperature in communication with a temperature-modifying device and an air circulating system, said programmable temperature control apparatus comprising:

a controller programmed to control a thermal output of said temperature-modifying device to achieve a desired temperature, and to operate said air circulating system independently of said temperature-modifying device.

2. The apparatus of Claim 1, further comprising a user-operable input connected for entering air handling information to program said air circulating system to operate at predetermined intervals.

3. The apparatus of Claim 2, wherein said air handling information comprises one or more selected from the group consisting of operating periods and ON time during said operating periods.

4. The apparatus of Claim 3, wherein said ON time may be set between 9 and 60 minutes.

5. The apparatus of Claim 4, wherein said ON time may be set in increments of 3 minutes.

6. The apparatus of Claim 1, further comprising a user-operable input connected for entering air filtration information used by said controller to generate air filtration output

information and a display for displaying said air filtration output information during said control of said thermal output of said temperature-modifying device.

7. The apparatus of Claim 6, wherein said air filtration control information comprises a air filter usage period that is one or more selected from the group consisting of 0 days, 30 days, 60 days, 90 days, and 120 days.

8. The apparatus of Claim 6, wherein said air filtration output information comprises one or more selected from the group consisting of how much time remains in said air filter usage period, what percentage of said air filter usage period remains, and whether said air filter should be checked.

9. The apparatus of Claim 8, wherein said time is represented in days.

10. The apparatus of Claim 8, wherein said percentage is represented using a bar indicator.

11. The apparatus of Claim 6, wherein said air filtration output information is calculated using a formula based upon user-inputted filter information and operation of said air circulating system.

12. The apparatus of Claim 1, further comprising at least one sensor for sensing at least one characteristic of said air circulating system and communicating said characteristic information based thereon to said controller; and wherein said controller is further programmed to generate

air filtration output information using said characteristic information and a display for displaying said air filtration output information during said control of said thermal output of said temperature-modifying device.

13. The apparatus of Claim 12, wherein said characteristic of said air circulating system comprises one or more selected from the group consisting of air pressure, air flow, air heat loss, fan usage, fan current draw, and fan power usage.

14. The apparatus of Claim 12, wherein said sensor includes a reset button for resetting said characteristic information.

15. The apparatus of Claim 12, wherein said sensor(s) is located proximate said filter.

16. The apparatus of Claim 12, wherein said sensor communicates with said controller using one or more selected from the group consisting of radio frequency communication, infrared communication, low voltage cabling, and household power lines.

17. The apparatus of Claim 12, wherein said sensor is configured to determine at least a portion of said air filtration output information from said characteristic of said air circulating system.

18. A programmable temperature control apparatus for the control of temperature in communication with a temperature-modifying device and an air circulating system, said programmable temperature control apparatus comprising:

a user-operable input connected for entering air filter information;

a controller programmed to control a thermal output of said temperature-modifying device to achieve a desired temperature, and to generate air filter output information based upon said air filter information inputted at said user-operable input; and

a display for displaying said air filter output information during said control of said thermal output of said temperature-modifying device.

19. The apparatus of Claim 18, wherein said air filter information comprises a usage period that is one or more selected from the group consisting of 0 days, 30 days, 60 days, 90 days, and 120 days.

20. The apparatus of Claim 18, wherein said air filter output information comprises one or more selected from the group consisting of how much time remains in said air filter usage period, what percentage of said air filter usage period remains, and whether said air filter should be checked.

21. The apparatus of Claim 20, wherein said time is represented in days.

22. The apparatus of Claim 20, wherein said percentage is represented using a bar indicator.

23. The apparatus of Claim 18, wherein said user-operable input is connected for entering air handling information to program said air circulating system to operate at predetermined intervals.
24. The apparatus of Claim 23, wherein said air handling information comprises one or more selected from the group consisting of operating periods and ON time during said operating periods.
25. The apparatus of Claim 24, wherein said ON time may be set between 9 and 60 minutes.
26. The apparatus of Claim 25, wherein said ON time may be set in increments of 3 minutes.
27. The apparatus of Claim 18, wherein said air filtration output information is calculated using a formula based upon a air filter information and operation of said air circulating system.
28. The apparatus of Claim 18, further comprising at least one sensor for sensing at least one characteristic of said air circulating system and communicating characteristic information based thereon to said controller; and wherein said controller is further programmed to generate said air filtration output information using said characteristic information.
29. The apparatus of Claim 28, wherein said characteristic of said air circulating system comprises one or more selected from the group consisting of air pressure, air flow, air heat loss, fan usage, fan current draw, and fan power usage.

30. The apparatus of Claim 28, wherein said sensor includes a reset button for resetting said characteristic information.

31. The apparatus of Claim 28, wherein said sensor(s) is located proximate said filter.

32. The apparatus of Claim 28, wherein said sensor communicates with said controller using one or more selected from the group consisting of radio frequency communication, infrared communication, low voltage cabling, and household power lines.

33. The apparatus of Claim 28, wherein said sensor is configured to determine at least a portion of said air filtration output information from said characteristic of said air circulating system.

34. A programmable temperature control apparatus for the control of temperature in communication with a temperature-modifying device and an air circulating system, said programmable temperature control apparatus comprising:

a user-operable input connected for entering air filter information;

a controller programmed to control a thermal output of said temperature-modifying device to achieve a desired temperature, and to generate air filter output information based upon said air filter information inputted at said user-operable input;

a display for displaying said air filter output information during said control of said thermal output of said temperature-modifying device; and

at least one sensor for sensing at least one characteristic of said air circulating system and communicating characteristic information based thereon to said controller to be used in generating said air filtration output information.

35. The apparatus of Claim 34, wherein said air filter information comprises a usage period that is one or more selected from the group consisting of 0 days, 30 days, 60 days, 90 days, and 120 days.

36. The apparatus of Claim 34, wherein said air filter output information comprises one or more selected from the group consisting of how much time remains in said air filter usage period, what percentage of said air filter usage period remains, and whether said air filter should be checked.

37. The apparatus of Claim 36, wherein said time is represented in days.

38. The apparatus of Claim 36, wherein said percentage is represented using a bar indicator.
39. The apparatus of Claim 34, wherein said user-operable input is connected for entering air handling information to program said air circulating system to operate at predetermined intervals.
40. The apparatus of Claim 39, wherein said air handling information comprises one or more selected from the group consisting of operating periods and ON time during said operating periods.
41. The apparatus of Claim 40, wherein said ON time may be set between 9 and 60 minutes.
42. The apparatus of Claim 41, wherein said ON time may be set in increments of 3 minutes.
43. The apparatus of Claim 34, wherein said air filtration output information is calculated using a formula based upon said air filter information and operation of said air circulating system.
44. The apparatus of Claim 34, wherein said characteristic of said air circulating system comprises one or more selected from the group consisting of air pressure, air flow, air heat loss, fan usage, fan current draw, and fan power usage.



45. The apparatus of Claim 34, wherein said sensor includes a reset button for resetting said characteristic information.

46. The apparatus of Claim 34, wherein said sensor(s) is located proximate said filter.

47. The apparatus of Claim 34, wherein said sensor communicates with said controller using one or more selected from the group consisting of radio frequency communication, infrared communication, low voltage cabling, and household power lines.

48. The apparatus of Claim 34, wherein said sensor is configured to determine at least a portion of said air filtration output information from said characteristic of said air circulating system.

49. A method of operating an air circulating system in communication with a programmable temperature control system, said method comprising the step of using a controller programmed to control a thermal output of a temperature-modifying device to achieve a desired temperature to independently operate said air circulating system under programmed operation.

50. A method of monitoring an air filter used in a programmable temperature control system, said method comprising the steps of:

entering air filter information to a controller programmable to control a thermal output of a temperature-modifying device to achieve a desired temperature;

generating air filtration output information using said air filter information; and

displaying said air filtration output information on a display during said control of said thermal output of said temperature-modifying device.

51. A method of monitoring an air filter used in a programmable temperature control system, said method comprising the steps of:

entering air filter information to a controller programmable to control a thermal output of a temperature-modifying device to achieve a desired temperature;

receiving characteristic information regarding at least one characteristic of said air circulating system;

generating air filtration output information using said air filter information and said characteristic information; and

displaying said air filtration output information on a display during said control of said thermal output of said temperature-modifying device.